

**REMARKS**

Claims 1, 3 and 5 are pending. By this Amendment, claims 1, 3 and 5 are amended. Further, the title is amended to conform to the claimed invention. No new matter is added. Reconsideration in view of the foregoing amendments and following remarks is respectfully requested.

**I. The Claims Define Patentable Subject Matter**

The Office Action rejects claims 1, 3 and 5 under 35 U.S.C. §103(a) over Hattori (U.S. Patent No. 6,034,718) in view of Tagawa (U.S. Patent No. 4,772,945), and further in view of Takahashi (U.S. Patent No. 5,522,789). The rejection is respectfully traversed.

Applicants respectfully submit that none of the references Hattori, Tagawa, or Takahashi, individually or in combination, discloses or suggests at least the capturing modes of an image capturing means provided with at least one input processing circuit include three capturing modes including a capturing mode in which image data can be captured from television cameras from frame to frame and the image data from the television cameras can be captured by successively switching the television cameras from frame to frame, a capturing mode in which the image data can be captured from the television cameras from field to field and the image data from the television cameras can be captured by successively switching the television cameras from field to field, and a capturing mode in which the image data can be captured from the television cameras from pixel to pixel and the image data from the television cameras can be captured by successively switching the television cameras from pixel to pixel, as recited in independent claim 1.

Moreover, none of the applied art teaches or suggests that at least two of the three capturing modes can be switched according to each step of fusion operation to capture the image data, the image captured by the selected capturing modes is displayed on a television monitor for observation, positioning members on which optical fibers are set are driven by a

driving device on the basis of the captured image data so that positioning of optical axes and end faces of the optical fibers is made, and each of the operation steps up to fusion-splicing of the optical fibers by discharging of electrode rods is automatically carried out.

The Office Action, at page 3, acknowledges that Hattori does not disclose that image data is captured from each television camera from frame to frame, from field to field, and/or from pixel to pixel and that the television cameras can be switched from frame to frame, from field to field, and/or from pixel to pixel. However, the Office Action alleges that Tagawa and Takahashi compensate for the deficiencies of Hattori. Applicants respectfully disagree.

Tagawa in Fig. 1 discloses that a TV camera 1, a microphone 2 and a sensor 3 make a set for one channel, and that a plurality of such channels, for example, eight channels are provided. The image data is selected by changing over switches between these channels (col. 2, lines 22-34). Nowhere does Tagawa disclose or suggest the above-noted features of claim 1.

The Office Action alleges that Takahashi teaches the recited capturing modes. Applicants disagree.

Takahashi relates to a stereo endoscope observing apparatus to make three-dimension observation of an object. Therefore, the claimed invention and Takahashi are from different technical fields.

In the optical fiber fusion-splicer according to claim 1, not only images of optical fibers to be fusion-spliced is observed, but also, at the same time, positions of the optical fibers are controlled based on data of the images so that fusion-splice can be made under optimal conditions. Thus, in the optical fiber fusion-splicer according to claim 1, the images of the optical fibers to be fusion-spliced are photo-taken from quite different directions. This makes positioning of the optical fibers easier.

In contrast, in Takahashi's apparatus, only stereo visualization by capturing the object in field of view of a user can be made. This means that the object is observed from almost the same directions. Therefore, Takahashi is different from the claimed invention in view of a photo-taking method.

In addition, according to Takahashi, two images photo-taken by two cameras are observed by wearing special glasses. Thereby, the images can be observed as a stereo image. However, the claimed invention needs no special glasses. Therefore, Takahashi is different in observation method.

The optical fiber fusion-splicer according to claim 1 comprises at least two among the following three modes of capturing image:

(1) Frame-capturing mode (capturing from frame to frame): In this mode, the image which is reflected on cameras is entirely captured. Both odd fields and even fields are captured.

(2) Field-capturing mode (capturing from field to field): In this mode, either odd fields or even fields are captured. The captured amount is half of that of the frame-capturing mode, so capturing time is also half. This makes processing at high speed possible. But image accuracy may deteriorate because the captured amount is half.

(3) Pixel-capturing mode (capturing from pixel to pixel): In this mode, only a necessary part in a frame is captured. Thus, speedy processing is possible and, with regard to the necessary part, accurate image data can be obtained.

In the optical fiber fusion-splicer according to claim 1, when a user performs a series of fusion-splicing operations, such as controlling the space between end faces of optical fibers, controlling the alignment of the optical axes, and fusion-splicing the end faces of the optical fibers by discharge arc, images of the optical fibers from the television cameras can be

captured by switching at least two of the above three capturing modes. This feature enables capturing in the following manner:

- (1) When the entire image reflected on the cameras is to be captured and processed, the frame-capturing mode is appropriate.
- (2) When the entire image is to be processed at high speed without the requirement for high accuracy of the image, the field-capturing mode is appropriate. Through increased speed of image processing, such capturing can meet a desire to the shorten time for fusing the optical fibers.
- (3) When only a necessary part is to be processed at particularly high speed, the pixel-capturing mode is appropriate. In this mode, however, parts of pixels that have not been captured cannot be observed.

As described above, in the claimed invention, image processing at high speed can be realized by selecting appropriate capturing modes in each operation step (operation stage) of fusion-splice, apart from processing speed (efficiency) of a CPU and the like. Because the optical fiber fusion-splicer according to claim 1 comprises at least two capturing modes as stated above, for the specific modes needed, processing at high speed can be made while maintaining the image accuracy.

Takahashi discloses the use of two capturing modes. However, as described above, Takahashi does not teach or suggest switching these modes according to operation step, as recited in claim 1. Moreover, Takahashi does not teach or suggest that the capturing modes are switched according to each of the operation steps.

Furthermore, Applicants respectfully assert that neither the Office Action nor the Advisory Action provides a proper motivation for combining the applied references. That is, the Office Action merely states that the combination of the applied references teach the features recited in claim 1. Moreover, the Advisory Action only states that it would have

been obvious to a person of ordinary skill in the art employing an optical fiber observing image processing apparatus as taught by Hattori to incorporate the Tagawa et al.'s image processing concepts for image processing only desired image data from each of the television cameras.

Applicants respectfully submit that such a statement is merely an end result of the combination and therefore not a motivation for one of ordinary skill in the art to combine the applied references. As stated in MPEP §2143.01, a statement that applied prior art teaches all recited features is not sufficient to establish a *prima facie* case of obviousness, without some objective reasons to combine teachings of the references. Accordingly, this rejection is improper.

Therefore, independent claim 1 defines patentable subject matter over the applied references. Claims 3 and 5 depend from independent claim 1, and therefore also define patentable subject matter at least for their dependence as well as for the additional features they recite.

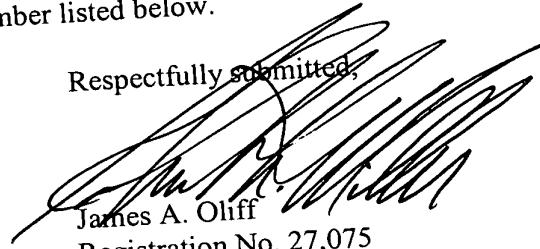
Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

## **II. Conclusion**

In view of the foregoing, this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 3 and 5 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned representative at the telephone number listed below.

Respectfully submitted,



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Attachments:

Petition for Extension of Time  
Request for Continued Examination

Date: December 29, 2005

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